The Builder.

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LAST week we led our readers, with a "running pen," to the ancient and interesting city of Caen, the *Cathim* or *Cadhom* of the Saxons, by whom it was probably founded. We touched in our way at Boulogne, Abbeville, Rouen, and Havre, not attempting anything like a connected account of the journey, but just noting such new things as were likely to interest, or be of use to our readers. That they were found new, and not uninteresting to the public generally, is shewn by the fact that there are few of our contemporaries of the daily press who did not reprint some of our memoranda and opinions.

Caen, as we said just now, is a Saxon town, and its connection with England did not stop there. When the Normans became its masters, and the Duke William was installed King of England, the communication between the countries was necessarily considerable. In 1346 Edward III. ravaged Caen and its neighbourhood, and in 1417 it was invaded by Henry V., and remained in the possession of the English nearly 40 years. Several buildings were erected by them here, and in other parts of Normandy; and in 1431 the Duke of Bedford, in the name of Henry VI., organised the university of Caen. The definitive installation of this establishment took place in 1439, in the church of St. Pierre, the elegant spire of which we have already alluded to.

St. Pierre belongs mainly to the fourteenth and fifteenth centuries, but the chapels forming the end of the building were added in 1521, and present very remarkable examples, both internally and externally, of the forms which pointed architecture assumed just previous to the entire abandonment of this style in favour of an imitation of the architecture of classic times. The interior is full of vagaries, carved pendents drop many feet from the vaulting, and the ribs are most curiously involved. Externally, both here and in other churches of the neighbourhood, the style shews much elegance and invention, and is well deserving of study. On this subject, if the divergence can be pardoned, we would note, that amongst *renaissance* works in Normandy of more perfect character than the chapels in St. Pierre, the extraordinary monument to Cardinal Amboise in Rouen Cathedral, dated 1525, should especially be examined. It is one of the most beautiful and elaborate of its class, full of sculptured figures and abounding with ornament.*

Returning, however, to St. Pierre, we would say that the stone used in its construction, which is apparently of the same formation as that now quarried, is for the most part in a good condition, excepting near the ground, where dampness and other causes have acted upon it. A large rose window in the entrance front (north), open tracery in the gable over this, and open parapets on both sides of the nave, but especially on the east side, are remarkably perfect.

A very curious collection of buildings near this church, the old *Bourse*, *Hotel de Monnaies*, &c., belonging apparently to the end of the sixteenth or beginning of the seventeenth century, and which have been little noticed by travellers, are not in so good a state. These structures, fronting a quadrangle, present columns and entablatures (in two stories), lofty roofs, ornamented stone dormers, turrets, and niches containing sculptured figures. A statue of David with the head of Goliah, and one of Judith, fill two of them. In others groups of sculptured foliage and instruments are held up by a hand which comes through the dome of the niche, while a head, as of the owner of the hand, is seen projecting from the entablature above the niche.

Notwithstanding the abundance of stone, and its general use for a very long period of time, there are many carved wooden houses with gables, precisely similar to some old English houses of the fifteenth and sixteenth centuries.

St. Sauveur, with additions of the *renaissance* period, and the modern shops plastered against it, like swallows' nests (as is unluckily the case all through Normandy), and the elegant tower of *St. Jean*, rent and sunk though it be, would afford subjects for comment; but we must away to the real object of our journey,

THE STONE QUARRIES OF CAEN,

Having first glanced at the quay on the right side of the river Orne, going to it from the town, where the three principal stone merchants, Messrs. Luard and Beedham, M. Foucard, and M. Jobert, have their wharfs, and keep a large quantity of stone ready for shipping.

When we say that, perhaps 400 cargoes of stone, averaging 100 tons each, are shipped hence in the year, and chiefly for England, the importance of the inquiry, and of obtaining, if possible, the best description of stone, becomes evident at once. At Buckingham Palace, Windsor Castle, the Army and Navy Club, Mr. Hope's new mansion in Piccadilly, and scores of churches and other buildings throughout the country, Caen stone is being used at this moment, and its failure, in some instances, has therefore necessarily caused considerable disquiet in many minds.

The importance of using care in the selection of stone for building purposes was not felt till recently,—the fact that the same quarry, of whatever stone it may be, will supply a bad as well as a good material was unnoted;—and the result is that many modern structures are in a state of obliteration. Blackfriars-bridge, built of Portland stone, began to shew symptoms of decay before it was finished. Several modern churches, built of the same material, retain little or none of their original carving; and some of the mouldings in the arches at Hyde-park-corner are all to pieces. We could even point to a building of the same material not yet finished, where, in spite of more than usual care, stones have crept in which are not likely to endure any time; and yet we all know that the Portland quarries do furnish stone as lasting and as good as any we can obtain. For this reason we have taken this stone as our example in illustrating the remark on the necessity for care in selection, and the little attention paid to this subject heretofore in England. The appointment of the commission to select stone for the Houses of Parliament, and the report which they published, have led to a different feeling on the subject, and cannot fail to be productive of advantage. Knowledge is now wanted, and that can be obtained only by careful inquiry and diligent investigation. Of this hereafter.

The principal quarries are at *Allemagne*, about a mile and a half due south of Caen. There are others at *La Maladrérie*, a suburb of Caen in another direction, but we shall confine ourselves to the former, simply remarking that the stone from the latter quarries seems to be of an inferior quality, and is distinguished by the occasional occurrence of a long narrow fossil shellfish (apparently a *pholas*), which we had no opportunity of closely examining.

Before entering the quarries we must in justice remind our readers, although we mentioned it last week, that we were accompanied by Mr. C. H. Smith, who has given long and continued attention to the nature and value of building stones, and was a member of the Government commission before referred to.*

On approaching the stone district, the visiter will observe here and there, scattered over an extensive plain, a small erection, with a heap of *débris* around it, and in a few cases a huge wooden wheel, without any building. These severally mark the shaft of a quarry. The use of the wheel, turned by men by means of spokes on the periphery of it, has been abandoned, and a steam-engine in a small building adjoining the shaft, the mouth of the shaft being also roofed over, has been substituted.

In the first we descended, the shaft was 12 feet by 7 feet, getting somewhat larger towards the bottom,—30 feet in depth down to the ceiling of the quarry, and was formed through beds of various thicknesses, from 1 foot to 3 or 4 feet, with a layer of small cherty nodules between the beds, 3 or 4 inches in thickness. From the ceiling to the floor of the quarry, and comprising the whole of the workable beds, it was 22 feet. The latter were very level, and the joints nearly vertical, giving as square and regular an appearance as if formed artificially. A steam-engine of 4-horse power was used, and the blocks raised weighed from 7 to 9 tons. There was a boring to supply the engine with water, 180 feet deep, and the quarry was very dry. It was worked underground, in a north-east direction, in galleries 20 feet wide, with continuous walls of the stone 3 feet thick left in to divide them, and support the superincumbent earth.

The quarries in this respect are under the supervision of a Government inspector, who enforces by constant visits the provision of proper supports. When piers are left in lieu of a continuous support, they are required to be 9 feet square. Notwithstanding the inspector, there were parts where the area unsupported, appeared much greater than 20 feet square (we measured one spot 30 feet square), and, being perfectly level, intersected by occasional fissures, had a somewhat threatening appearance: the rareness of the fall of a ceiling shews the cohesive power of the bed. The quarries each extend a considerable distance, and present in places very striking effects. The arrangement of the beds, looking as if giants had been building, makes quarrying easy and the waste of stone comparatively small. Of these particulars, however, which apply to all the quarries equally, we will speak hereafter.

The second quarry into which we went was east of the first, and was unworkable, being full

* Very little good ancient ironwork is to be found in the churches of Normandy. For the rarity' sake, therefore, we must note that there is a cleverly wrought lock and handle of the fifteenth century on the door of a chapel on the south side of the chancel of the building just named—Rouen Cathedral.

* The whole cost to the country of this commission did not exceed 1,200*l*. Had the sum been double it would not have been unwisely spent.